When Thomas Jefferson designed the Lawn, his goal was to create a machine for learning, albeit a very beautiful one. His arrangement of faculty pavilions and student rooms branching out from a central library accomplished his aim of encouraging faculty and students to work together. But he was not satisfied with a set of buildings that merely sheltered his educational institution. He wanted his buildings to teach. Each pavilion is a textbook example of how to create variety within the Palladian style of architecture he loved so well.

The same spirit animates Rice Hall, which is rising on the south end of the Engineering School Grounds. Made possible by a lead gift of $10 million from Paul G. Rice (EE ’75) and Gina J. Rice through the Rice Family Foundation, Rice Hall not only adds much-needed space for research and education in information technology engineering (ITE), it is itself a teaching tool. “Our goal is to make this building a showcase for the impact that information technology engineering is having on the world,” says James H. Aylor, dean of the Engineering School.

A case in point is the advanced heating, cooling, lighting and energy recovery systems linked to sophisticated controllers that will be deployed in Rice Hall. The Engineering School’s Chief Technology Officer Mitch Rosen notes that “some of these technologies have not yet been widely adopted in the U.S. Our building will be highly instrumented and the energy savings monitored and documented. The deployment and successful implementation of these advanced technologies is a key step on the path toward net-zero energy high-performance green buildings.” They will also contribute to Rice Hall’s attaining a LEED certification from the U.S. Green Building Council.

Additionally, this sophisticated technology serves as the backdrop for research and education conducted in the Living Laboratory, a series of offices and laboratories devoted to energy management. Associate Professor Ronald Williams, the director of the Living Laboratory, foresees that each laboratory will be equipped with different types of lighting and mechanical systems. “Students will be able to look at energy consumption in these spaces and experiment with different control strategies that could later be adapted for other settings,” he says. Williams envisions that students might be able to conduct similar trials in future generations of the ecoMOD project, the award-winning series of sustainable housing prototypes developed with the School of Architecture in partnership with the Engineering School.

Expanding the Student Experience

This emphasis on the student experience is part of Paul Rice’s vision for the building. He was president and founding partner of PEC Solutions, which undertook a variety of high-profile information technology and systems engineering projects for the federal government.

“I was looking for the best and brightest,” he recalls. “Even though I’m
a U.Va. graduate, it struck me forcefully when I was hiring, how well the School prepares its students for the workplace.” Rice found that graduates of the Engineering School not only thought in a disciplined way but also could communicate their ideas effectively and work collaboratively with others.

Rice’s motivation in funding the building is to enable the School to provide an even stronger background in these skills. “I wanted the design of the building to be inspiring, because good design in itself contributes to productivity and effectiveness,” he says. “At the same time, I wanted to give students a place to work, to exchange ideas and to collaborate on large projects.”

Professor George Cahen, who teaches the computational side of Introduction to Engineering, is particularly excited that Rice Hall will have ample space for the course’s workshops, thanks to a gift from Chip Lacy (ChE ’67, Darden ’69). “We currently have 600 students in 16 workshops, each devoted to a specific design problem,” he says. “Finding room for these workshops is always difficult, but they’re absolutely crucial to what we are trying to accomplish.” Giving students exposure to an open-ended engineering design problem early in their academic careers has been proven to increase retention in engineering programs. These problems range from designing sets for original stage productions to creating robots that can compete in Lego® Olympics.

“Our workshops require shop, bench and computation space,” Cahen says. “Rice Hall has all of that and more.” Cahen welcomes features such as a large overhead door that will enable students to move projects from the workshop space out to the building’s patio and the large window that gives passersby the ability to track work in progress. “The way the building is designed makes these activities visible so that they can be part of the everyday life of the School,” he says.

Enhancing Faculty Collaboration

Rice Hall also will encourage greater faculty collaboration. Associate Professor John Lach, a member of the electrical and computer engineering faculty, is among a number of faculty who will be moving to the new building. Lach’s research focuses on bridging the gap between the electronics and programming in a computer system. He is engaged in a number of projects with computer science faculty, including one to develop better security for the radio frequency identification tags that are cropping up in a host of applications, from passports to E-Z Pass transportation payments systems.
For Mary Lou Soffa, chair of the Department of Computer Science, the equation is straightforward: The quantity of first-class space allocated for the department in Rice Hall will produce a qualitative difference in its programs. For the first time in decades, the entire department — graduate students, faculty and staff — with all its facilities — offices, laboratories, seminar rooms and lecture halls — will be housed under one roof. In addition, a number of computer engineering faculty will be joining them. “We’ll have the facilities and the critical mass to apply for much larger, center-scale projects,” she says.

And those facilities will be spectacular. “In many areas, the space we currently have available is not equal to our aspirations or our achievements,” she says. Rice Hall will change all that. It includes laboratories for visualization, wireless sensor networks, graphics, and real-time computing, as well as two conditioned machine rooms. Faculty will be able to make the case to funding agencies that they can accommodate larger, more ambitious projects.

As the pace of research picks up, people will want to come to the department. “I believe that we will find it easier to attract and retain great students and faculty,” Soffa says. And the auditorium and great meeting spaces will heighten the level of collaboration. “Rice Hall will enable our faculty to engage more deeply with faculty across the University,” she says. “It will help us create a much deeper culture for computer science and computer science research.”